

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference FRK-0029-PCT	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2004/007370	International filing date (day/month/year) 29 May 2004 (28.05.2004)	Priority date (day/month/year) 30 May 2003 (30.05.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant FURUKAWA CO., LTD.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1 (a).	
2. This REPORT consists of a total of 4 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.	
3. This report contains indications relating to the following items:	
<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application
4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35 Form PCT/IB/373 (January 2004)	Date of issuance of this report 16 March 2006 (16.03.2006)
	Authorized officer  Masashi Honda  Telephone No. +41 22 338 70 10

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

Translation

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43b(i.1))

To:  			Date of mailing (day/month/year)	
Applicant's or agent's file reference <b>FRK-0029-PCT</b>			FOR FURTHER ACTION See paragraph 2 below	
International application No. <b>PCT/JP2004/007370</b>	International filing date (day/month/year) <b>28.05.2004</b>	Priority date (day/month/year) <b>30.05.2003</b>		
International Patent Classification (IPC) or both national classification and IPC				
Applicant <b>FURUKAWA CO., LTD.</b>				
<p>1. This opinion contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 43b(i.1)(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> <p>2. FURTHER ACTION</p> <p>If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 60.1b(xb) that written opinions of this International Searching Authority will not be so considered.</p> <p>If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.</p> <p>For further options, see Form PCT/ISA/220.</p> <p>3. For further details, see notes to Form PCT/ISA/220.</p>				
Name and mailing address of the ISA/IS			Authorized officer	
Facsimile No.			Telephone No.	

Form PCT/ISA/257 (cover sheet) (January 2004)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/007370

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language:  
\_\_\_\_\_, which is the language of a translation furnished for the purposes of International search under  
Rule 12.2 and 23.1(b).

2. With regard to any nucleotide and/or amino acid sequences disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

## a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

## b. format of material

☐

in written format

☐

in computer readable form

## c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

## 4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		International application No. <b>PCT/JP2004/007370</b>
Box No. V Reasoned statement under Rule 43bis, (iv)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement		
<b>1 Statement</b>		
Novelty (N)	Claims <u>1-4</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-4</u>	NO
Industrial applicability (IA)	Claims <u>1-4</u>	YES
	Claims _____	NO
<b>2 Citations and explanations</b>		
Document 1: JP 2003-113418 A (Nippon Steel Corp.) 18 April 2003		
Document 2: JP 53-22843 A (Nippon Steel Corp.) 02 March 1978		
Document 3: JP 2000-73152 A (President of Osaka University) 07 March 2000		
Regarding claims 1-4		
Based on documents 1-3 cited in the ISR, the inventions described in claims 1-4 do not appear to involve an inventive step.		
Because crystal grain refinement by ultrasonic treatment that applies strain to a metal material, as described in documents 1 and 2, and crystal grain refinement by heat treatment at the temperature of recrystallization after applying strain to a metal material by intensive working, as described in document 3, belong to mutually closely related technical fields, a person skilled in the art can easily conceive of arriving at the constitution of the inventions described in claims 1-4 by applying the post-straining heat treatment described in document 3 to the ultrasonically treated materials described in documents 1 and 2.		
In addition, since the selection of the treated metal is a matter of design variation, a person skilled in the art can easily conceive of arriving at the constitution of the inventions described in claims 2 and 3 by way of treated metal selection in the inventions described in claims 1 and 4.		

Form PCT/ISA/237 (Box No. V) (January 2003)